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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of)
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Advanced Television Systems) MM Docket No. 87-268
Their Impact Upon the) DOCKET FILE COPY ORIGINAL
Existing Television Broadcast Service)

Sixth Further Notice of Proposed Rule Making

To: The Commission

COMMENTS OF
NORTHERN CALIFORNIA CHAPTER OF THE ASSOCIATION OF
PUBLIC/SAFETY OFFICIALS, INC.

The Northern California Chapter of the Association of
Public/Safety Communications Officials-International, Inc.
hereby submits the following comments in response to the
Commission's Sixth Further Notice of Proposed Rule Making, MM
Docket No. 87-268.

INTRODUCTION

The Northern California Chapter of APCO was chartered in
1937. It has over 400 members representing all of the major
metropolitan areas of the region in addition to many of the
smaller counties, cities and districts and the state of
California agencies utilizing public safety channels.
Certain of its members are the recognized Local Frequency
Advisors for APCO. Monthly membership meetings are held, and
many of its members are also active in APCO International
committees and affairs.

Television Channels 16 and 17 are extensively used by
numerous public safety agencies in the San Francisco area.
The Chapter is deeply concerned that the assignment of

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Channels 15 and 18 for use of digital television in this same area would have a severe adverse effect on many, if not all, of these systems. The proposed location of these new channels and the high power listed for their use is certain to result in interference to public safety radio receivers. Further, land mobile transmitters could cause interference to television receivers in much of the service area. The following comments will illustrate and support these claims.

DISCUSSION

The Chapter is supportive of the intent to develop digital television. Further, it recognizes the difficulty in transition from analog and in developing a suitable channel assignment plan. However, it appears that the potential for interference to the land mobile use of Channels 16 and 17 in the San Francisco area has not received serious consideration. The Sixth Notice of Rule Making proposes to provide at least 176 km of spacing between DTV stations and land mobile assignments. This is prima facie evidence that the FCC engineers recognize the potential for interference. This apparently has been observed in virtually all of the proposed assignments nationwide and why this has been so grossly disregarded in the San Francisco area is difficult to understand. The Chapter offers the following facts which bear directly on this proposed allocation.

1. Examination of the FCC records indicate that there are approximately 605 radio base stations licensed to the public safety agencies in the San Francisco

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area. The estimated number of associated mobile units exceeds 30,000.

2. Numerous cities, and counties are relying on public safety radio systems licensed on either Channel 16 or Channel 17 for their primary operations. This includes police, fire, emergency medical and associated local government services.
3. In addition to the presently licensed stations, the Commission in its "Refarming" procedure has made the interstitial 12.5 kHz channels available in these TV channels. There are presently several agencies contemplating a move to these new channels.
4. Several of these systems are in the immediate vicinity of the proposed assigned locations for Channel 15 or Channel 18. All are located within the 50 mile (80 kilometer) radius of San Francisco as provided in the Rules and Regulations. This is only half the recommended distance from the adjacent channel television assignments listed in the Docket for the San Francisco area.
5. The effective radiated powers listed for channel 15 are 163.7 kw and for Channel 18, 3812.9 kw. These powers are certain to produce high level spurious emissions, and a significant probability of intermodulation.
6. Public safety base stations are often located in the

heart of the television listening audience. Public safety mobile units may be transmitting as close as next door to a television receiver. This exacerbates the potential for public safety services operating on Channels 16 or 17 to interfere with television receivers, particularly in areas of low television signals.

7. The proposed location of several channels, including that of Channel 18 on the Mt. Sutro tower, is certain to result in the potential for huge magnitudes of problems. The number of stations and the high radiation already existing at the Mt. Sutro site presently poses an intermodulation nightmare. Adding the proposed digital channels increases this problem by many magnitudes.
8. The combined radiation of the many channels on the Mt. Sutro tower may also present a serious threat to the health of those in the vicinity. Adding DTV channels with the proposed powers will exacerbate this radiation problem to a level which will certainly exceed the FCC's own permissible standards. This is certain to be of concern to those living nearby and to personnel who work on the equipment.
9. The Sutro Tower is located near the Pacific Coast. The climatic conditions produce many days of wet, salt laden fog. Consequently, the bolts of the

tower and other connections of feed lines and supports present innumerable high resistance contacts, conducive to non-linear rectification. The high powers prescribed, and the incredible number of frequencies involved is certain to result in an extremely broad band of intermodulation products. Preliminary calculations have shown that many of these will fall directly within Channels 16 and 17 where land mobile is operating. A diagram of the tower with current allocations is attached. (See Attachment A). The Chapter challenges the engineering staff to add the new proposed allocations to this diagram and perform the necessary intermodulation calculations to verify the concerns expressed in these comments.

10. Although the Commission has stated that the responsibility of protecting existing land mobile usage lies with the television licensee, this has proven impossible to administer. One need only look at the situation in Atlanta and similar other occurrences to verify this assertion. The high powers stated in the Docket will require special filters, not readily available, to reduce out of band emissions to the required level. Costs will be enormous for such filters, and insertion loss will be excessive.

CONCLUSION

In light of the preceding factors the Chapter respectfully submits that the advisability of proposing to allocate Channels 15 and 18 to the San Francisco area, particularly with the recommended power is completely unacceptable. Examination of the list of allocations in the Docket appears to reveal a significant potential for selecting other channels which have far less potential for interference. The Chapter does not have the resources, nor does it presume to supplant the Communication's engineering staff. However, as an example, the exchange of at least one channel assignment with Stockton, many miles removed, appears feasible. Further, there is no assurance that all, or even many, of the existing television stations have either the finances or the desire to convert to DTV. This should be ascertained before channels are actually allocated. To pre-allocate, and hold channels fallow for many years is a waste of spectrum which is so desperately needed by other services, public safety in particular! In fact, while not the subject of this Docket, International APCO has a pending request for the assignment of several UHF television channels for use by public safety. Channel 15 would make an excellent choice for the State of California and relieve the extreme shortage of frequencies for public safety use.

The Chapter appreciates the intense effort that has gone into this proceeding. However, there are several issues that do not appear in the Docket that may be worthy of

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consideration.

First, is the fact that since its inception there has been no serious effort to reduce bandwidths from 6 MHz. This is in stark comparison to the "refarminmg" that has taken place in land mobile. Over the years these channels have been reduced from the original 50 kHz channels to 25 kHz to 12.5 kHz and ultimately to 6.25 kHz. It would appear that new digital technology would offer the potential for greater spectrum efficiency in television as well as land mobile. For example, certain studies indicate it would be possible to multiplex as many as five conventional channels in the NTSC equivalent mode on a single 6 MHz DTV channel. Using Direct Broadcast Satellite as an example, it appears that digital television could offer significant improvement in quality over analog, while operating in a more spectrum efficient manner.

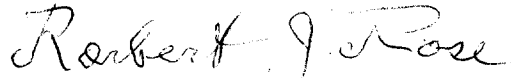
While recognizing the difficulty in transition, it must be considered that public safety is faced with similar problems in moving from analog to digital, and does not have the luxury of huge blocks of spectrum to facilitate the process. The prospect of television stations occupying two channels in lieu of one for an extended period of time is appalling.

These issues have been covered in other filings by both International APCO and the Northern California Chapter. They are iterated here to emphasize the threat presently posed by the assignment of Channels 15 and 18 to the San Francisco

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area. The Chapter respectfully requests that this matter be given deep and serious consideration and immediate action be taken to remedy the situation. To fail to do so places the future of these vital public safety systems in question, and impairs the ability of the affected agencies to plan for both their present and future needs.

Respectfully submitted,

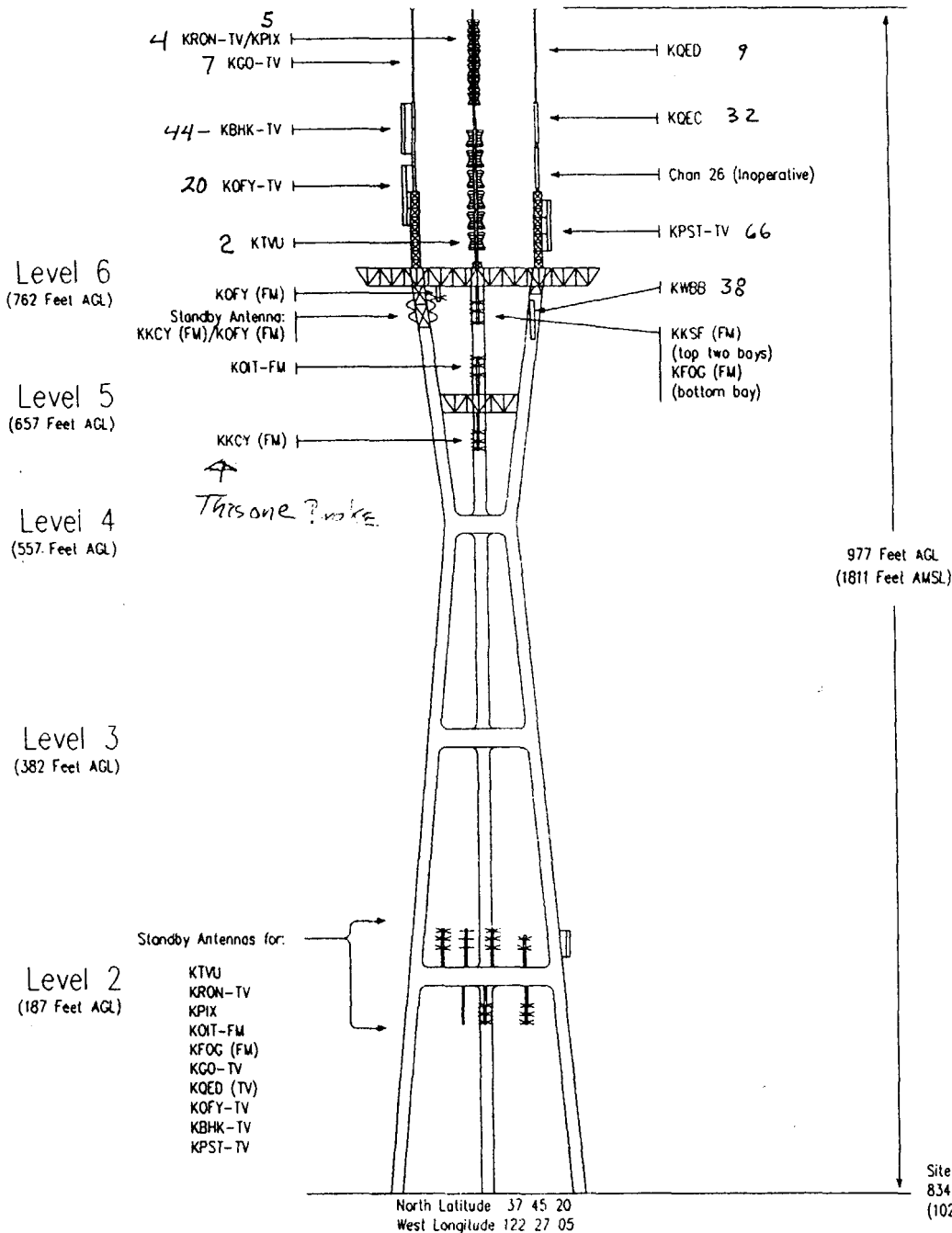
A handwritten signature in cursive script, reading "Robert J. Rose".

Robert J. Rose, Secretary

Northern California Chapter of APCO

7468 Muirwood Court

Pleasanton, CA 94588-4232



Rev	Description	Date	Auth

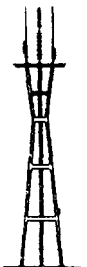
ATTACHMENT "A"

Title:

SUTRO TOWER BROADCAST ANTENNA
PLACEMENT - VIEW LOOKING WEST

SUTRO TOWER, INC.

250 PALO ALTO AVENUE
SAN FRANCISCO, CA 94114



Drawn by: R. J. HERRING 3/1/89

Approved by:

Scale: 1" = 150'

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